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Faculty of Engineering and Information Tech.
جامعة النجاح الوطنية
كلية الهندسة وتكنولوجيا المعلومات
Computer Engineering Department
Data Structures and Algorithms (10636211)
HW 3

Due to 18/5/2021 **20 points**

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In this assignment, you will implement the following codes related to a binary tree.

1. Template class Node with the following information
    - Data as template
    - Pointer to left Node
    - Pointer to right Node
    - Default constructor
    - User defined constructor
    - getLeft() function : return a pointer to left node
    - getRight() function: return a pointer to right node
    - getData() function: return data of node

2. Class MyBinaryTree
    1. Private member variable to represent BinaryTree (root)
    2. Default constructor
    3. Users define constructor to build the root node with data.
    4. Insert function: Inserting new node to the binary search tree. (**BST**)
    5. Print function : To print Tree In Order*// overloading <<, ex cout<<T1;*
    6. Function to calculate the height of each node.
    7. Function returns true, if the Binary search tree is balanced(balance factor per each node at most 1).
    8. Function to print Nodes where the sum of its children equal value **K.**
       void PrintSumNodesK(root, int K)
    9. Function to print all nodes in the given range
       void inValueRange(root, int r1, int r2); *// e.g values between 10 and 50.*
    10. Function to print all nodes in the given range
        void inLevelRange(root, int level1, int level2); *// example: level 2 and level 6 if available, else print not available; First level is level 0.*

3. Full menu to test all functionalities.

Good Luck